Sraffian Research Programmes and Unorthodox Economics

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ABSTRACT This paper provides an overview of the main currents in the development of the intellectual project inaugurated by Piero Sraffa’s Production of Commodities by Means of Commodities. Five research programmes are detailed (together with some further extensions): the nature and significance of long-period equilibria; the Cambridge Growth Equation and the monetary determination of interest, as alternative theories of distribution; the Sraffa–Keynes synthesis; and the critique of marginalism. The paper also sketches the relations between the Sraffian project and other unorthodox strands in economics. Future prospects for orthodoxy and non-orthodoxy are canvassed. A substantial literature survey is included.

Some day economics may become a science.
(attributed to J.M. Keynes, 1932: Rymes, 1989, p. 83)

1. Orthodoxy and Unorthodoxy

Political economy and, subsequently, economics have always had their critics. To the extent that William Petty is the founder of political economy, Jonathan Swift—who in his Modest Proposal (Swift, 1729) deliciously satirized Petty and the wider seventeenth-century English preoccupation with labour utilization—may be thought of as the first such critic.1 Political economy and economics have also both commonly had their dissenters. This is a different thing: critics are those who attack from ‘outside the frame’ so to speak; while dissenters are those who attack from ‘inside’, in some sense. When Thomas Carlyle decried political economy as ‘the’ dismal science in 1849, he did not possess any conceptual and analytical economic framework alternative to that which he was opposing; but

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1 Swift’s satire is ‘delicious’ in more than one sense, since his main proposition is that the children of the poor be eaten by the rich.
when Keynes attacked economics in 1936, he did purport to have an alternative economics (which, in a very bad joke, was said to have transformed the discipline into the gay science). The former is merely a critic; the latter, a dissenter. In any case, certainly earlier political economy and, subsequently, modern economics have not always confronted alternatives to themselves. In fact, the sense in which classical political economy was ever an orthodoxy, except in retrospective ‘Whig history’, is problematic. That historiographical problem may be put aside here, in order to focus on modern economics, in the sense of the marginalist approach, which had its decisive advent in the 1870s, notwithstanding precursors, although it secured a genuinely dominant position only well after the Second World War. For the purposes here, the following defines economic orthodoxy: an approach to understanding economic society in which constrained optimization by autonomous individual agents facing substitution possibilities generates simultaneous demand and supply functions (or correspondences) for commodities and factors of production, such that market clearing under competitive conditions determines equilibrium quantities and relative prices, including prices of the factors of production. Marginalism is a reasonable nomenclature for this, reflecting the optimization conditions embodied in marginal equalities or inequalities.

A self-proclaimed alternative economics can hardly be regarded as ‘non-orthodox’—or ‘heterodox’ if one prefers, or genuinely ‘alternative’—unless it entails a rejection of at least some fundamental elements of this orthodox vision. Whatever alternatives to that approach to understanding economic society may earlier have existed, in the second half-century of its existence it confronted a series of rather robust challenges from a range of sources: Sraffa’s precise interventions; the Keynesian revolution; an intellectually revitalized Marxian economics (intersecting with the Sraffian and Keynesian projects); Kalecki’s synthesis of effective demand with Marxist elements and non-competitive pricing; and Institutionalism—the last, in a sense resisting from the very beginning of the marginalist tradition (in its earlier, ‘Historical School’ incarnation). Post-Keynesian Economics was a somewhat forced attempt to build a ‘church’ broad enough to find a place for many of these intellectual currents. My purpose here is to address the character and significance of ‘the Sraffian project’ within this range of alternative approaches to economics. My premise is that orthodoxy as defined above is radically inadequate for understanding economic society. The next section outlines the core propositions that those who are committed to Sraffa’s approach would share and endorse. Section 3 sketches the relationship between these propositions and the other alternatives to orthodoxy, with a view to clarifying the extent of consensus and isolating outstanding differences of view. The final section considers the prospects for Sraffian and other alternatives, in relation to the current state of orthodox economics.

2. There is No Sraffian ‘School’

It has been a commonplace to articulate orthodoxy and dissenters who contend against it, or against elements of it, in terms of a set of contending ‘schools’. Consciously or otherwise, this is to borrow from the language of the history of philosophical disputation. Is this appropriate? In the history of philosophy context, the different philosophical schools present themselves, or are presented by others, as each providing generally quite comprehensive viewpoints on all major elements of the relevant domain or sub-domain of philosophical inquiry. Hence, for example, we have all-embracing systems of thought—‘world views’, as it is said—such as Platonism or Utilitarianism. Economic orthodoxy in some of its forms has certainly made claims to an analogous kind of comprehensiveness, within the domain of the explanation of economically relevant phenomena. The general equilibrium framework—which was the standard for orthodox high theory in the 1960s, when alternative approaches gained some victories—had such aspirations. And the claim by some, to have found in constrained individual optimization the kernel of the human psychology as such, takes aspirations to comprehensiveness to new heights of pretension (e.g. Wicksteed, 1914, pp. 1–9).

Such aspiration to comprehensiveness may also be relevant to some of the alternatives to orthodoxy; but the Sraffian project offers no evidence of such aspirations or pretensions. I have used the term ‘Sraffian project’ advisedly, precisely because I do not think there is any such thing as a Sraffian School: even the term ‘project’ might give the impression of a more unitary, homogeneous and monolithic intellectual edifice than is the reality.

In relation to any intellectual claims to comprehensiveness, from orthodox or non-orthodox standpoints, the Sraffian project in a sense appears as having a more modest aim. Rather than offering a comprehensive alternative to orthodoxy, it posits a narrower set of solutions to certain fundamental problems in the history of economic theory—most notably, the relationship between distribution and ‘equilibrium’ (or more appropriately, ‘normal’)3 prices in production systems subject to competition and choice among methods of production. The Sraffian resolution of this subject does not leave open all theoretical possibilities in other areas; but it does leave many issues open. It does not, for example, leave open the possibility of endorsing orthodox factor substitution mechanisms in long-period frameworks—nor any propositions for which those mechanisms are necessary. An example of the Sraffian project’s ‘openness’ is the theory of distribution itself: given the available methods of production and the levels of gross outputs to be produced, exogenously fixing one distributive variable (e.g. the general rate of profit) allows determination of the technique of production which will be used, and commodity prices simultaneous with the remaining distributive variables. However, the determination of the ‘exogenous’ distributive variable remains open to a variety of possibilities (although only one can be sound for any particular time and place). This openness of the Sraffian project to a variety of possible theories, across a range of economic phenomena, is why

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I have used the plural *programmes* to refer to development of the Sraffian project. Nevertheless, with regard to the theory of commodity outputs—also somewhat open from the core Sraffian standpoint—the overwhelming tendency of Sraffian economists has been to favour an ‘effective demand’ approach, even though this tendency is not a (strictly) logical consequence of fundamental Sraffian ideas.

Rather than a comprehensive theory of human and social economy then, what the Sraffian project augmented by effective demand stands upon is a small set of fundamental propositions, from which a *variety* of research programmes can proceed. It is, so to speak, a configuration of intellectual machinery available to inform wider and applied economic analyses. These propositions, which those committed to Sraffa or ‘Italo-Cambridge’ projects were seeking to sustain during the debates and controversies of the 1950s to the 1970s, would remain common ground for virtually all those engaging in economic analysis in light of Sraffa—although with the monetary propositions the most contentious. They can be stated as follows.

**Income Distribution.** Equilibrium (or the ‘normal’ position) of a competitive economy does not entail a unique, functional income distribution, or unique set of rates of return to the owners of inputs to production (labour, capital, scarce natural resources, entrepreneurship, risk-bearing). Demand (or marginal productivity) and supply approaches to determining ‘factor prices’ are found to be incoherent. On the contrary, within definite technological restrictions, the distribution of the net product—or more precisely, the social surplus—is open to determination by wider social forces.

**Relative Commodity Prices.** The fundamental determinants of normal relative commodity prices are the input–output ratios associated with methods in use for the production of commodities—together with one distributive variable (most usually, a rate of return), determined independently of technology and prices, although subject to technological restrictions—hence the notion of ‘production prices’. Commodity demands only influence relative prices so understood, via their influence on either those production coefficients (input–output ratios) or on the independent distributive variable. Beyond this, the interaction of commodity demands and supplies only influence ‘market’ prices. Commodity supply functions of the orthodox kind, since dependent upon incoherent factor substitution mechanisms, are rejected.

**Output Levels and Labour Employment.** At least in modern capitalism, activity levels are determined by autonomous elements of commodity demands, together with ‘multipliers’ capturing induced elements of commodity demands—the latter in turn determined by income distribution, spending and saving propensities, and technology. (It follows that accumulation and growth are also understood in terms of growth in autonomous demands.) This entails

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4 Roncaglia (1991, esp. pp. 188, 198, 211) expresses a similar view—though developed in a rather different way, in terms of three distinct but largely compatible lines of inquiry: ‘Ricardian’ (Pasinetti), ‘Marxian’ (Garegnani) and ‘Smithian’ (P. Sylos Labini). Walsh (2000, esp. pp. 17, 19–20, 22) sees the minimalism of Sraffian economics as only a first phase of the revival of classical economics, with a need now to build a second, more expansive stage around Smithian themes (Pasinetti, 1981 and 1993 being the exemplars).
a rejection of the notion that competition can bring commodity demands endogenously into balance with commodity supplies, in such a manner as also to bring into balance derived demands for inputs and autonomous supplies of inputs (most notably labour). Involuntary labour unemployment is probable as a normal outcome of competitive (or indeed, non-competitive) capitalism. This may be read as implying, although it certainly does not entail, the desirability of active policy management of at least aggregate activity; but all policy issues are left aside here, just as history of thought issues are left aside (see note 7).

**Monetary Phenomena and the ‘Real’ Economy.** A rejection of the orthodox neutrality of the money doctrine does not necessarily follow from the above three sets of propositions; but it becomes a quite compelling possibility once income distribution is rendered indeterminate in the manner of the first set of propositions. That indeterminacy can be construed to mean that ‘real forces’ provide no ‘anchor’, so to speak, for the determination of yields in money markets. One Sraffian research programme—the Cambridge growth equation approach to distribution—in fact provides an alternative, non-orthodox way of determining distribution by real forces (the rate of accumulation; see Section 3). Sraffa (1960, p. 33) himself famously suggested the possibility of reversing the orthodox causation between profit rates and interest rates; and at this level of abstraction, that position coincides with Keynes’s intention (e.g. Keynes, 1936, pp. 202–204; 1937, p. 250), however faulty his execution of the idea. Hence, similar to the issue of the theory of activity levels, although not a strictly logical consequence of fundamental Sraffian ideas, there is probably a strong tendency to favour non-neutrality of money among Sraffian economists, if not as widely as the endorsement of the Sraffa–Keynes synthesis implied by the third set of propositions above.5 Analogously, the theory of inflation remains a fairly open issue, although most would endorse the notion of non-monetary shocks playing an important role in modern capitalism, in initiating inflations; so that, historically speaking, Sraffians would tend to side with the Banking School rather than the Currency School (Pivetti, 1991, pp. 38–39, 77, 80–81).

The variety of research programmes associated with these doctrines is further outlined below. It may be added here that the limited theoretical domain of the Sraffian project does not only leave it open to a range of alternative possibilities for specifying theory for determining other, to an extent separable, economic phenomena; it also makes the Sraffian project open to ‘history’ in a substantial sense. For example, the degree of freedom in the determination of commodity prices (one exogenous distributive variable) makes it possible for different ‘closures’ (determination of the exogenous variable) to be applied, at different times and places. To this extent, the limited domain of a Sraffian doctrine is a virtue not a defect—a welcome modesty of claims to definite and

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5 The conceptual distinction between real and monetary (‘nominal’) magnitudes of course remains valid—where the former refers to quantities measured in some physically existing entity which has its own natural dimension of measurement (weight of homogeneous silver, time length of homogeneous labour, and so on). What non-neutrality means is that equilibrium or normal values of real variables are not independent of ‘nominal’ magnitudes—where the latter refers to quantities measured in some conventional unit of account or standard of value (US$, GB£, and so on).
determinate general theoretical knowledge of the economically relevant world. This is well illustrated by a recent review:

The realities of modern economic growth cannot be adequately captured by linear models allowing only for capital accumulation, labour force growth and technical progress. Natural resources and non-produced means of production make qualitative differences to the growth process. There are scarcities and scale effects even in the presence of constant-returns-to-scale methods of production. … Moreover, it quickly emerges that even very ‘simple’ models, with few produced commodities, few natural resources and unlimited supplies of labour can easily give rise to complicated dynamic paths, too complicated indeed to be analytically tractable. … [Once] the produced means of production include … a ‘primary’ commodity … produced … using also non-produced means of production … this single fact is … going to lead to analytical results significantly different from those of many familiar models. Prices and distribution now depend on which process has zero rent and the overall level of activity of the economy is now relevant even to, say, the wage-profit relationship. … There can be distributional conflict between employed and unemployed workers … rent can be non-monotonically related to the rate of profit … and the wage and profit rates can increase together (at the expense of rent). … The general theme [in relation to incomes and prices] is that of the complex forms of conflict among the different sources of income but general results are found to be hard to come by; even with simplifying assumptions, resort has to be taken to simulations and to complicated case-by-case statements of outcomes. … The effects of [technological] progress on prices and distribution can be minimal, or they can be rather drastic. (Steedman, 2001)

In truth, a fundamental defect of orthodox economic theory is that it has claimed far too much for our capacity to know the theoretical structure of the world—and this has definitely contributed to the disrepute of the discipline (too many smug economists). A more modest—but by virtue of that, hopefully more robust—economic theory is very much to be desired; and by corollary, also a greater reliance on historical studies and inductive methods. A better recognition of the limits and the frailty of our theoretical knowledge should be a conscious part of the ‘temper’ of economics practitioners, unorthodox or otherwise. Part of the purpose of non-orthodox economics should be not only to indict orthodoxy for various specific, faulty, substantive propositions, but also to repudiate it in general, for trying to say too much; for making larger claims to systematic knowledge than is possible in the domain of the human sciences. In many respects the Sraffian project deserved to be called ‘neo-Classical economics’, had not a bastard Pretender already stolen that name (Aspromourgos, 1986). By taking such a serious view of the limits to economic theory—the limits to what we can ‘know’—perhaps Sraffa’s project could instead have been called neo-

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6 For example, Plato’s *Apology of Socrates* (21d), where Socrates is speaking of his thoughts after a conversation with a statesman:

For my part, as I went away, I reasoned with regard to myself: ‘I am wiser than this human being. For probably neither of us knows anything noble and good, but he supposes he knows something when he does not know, while I, just as I do not know, do not even
3. Sraffian Research Programmes and Other Unorthodoxies

Starting from the core propositions of the Sraffian project, what has the relatively small cohort of economists working in this framework been doing? Some key literature in each of five Sraffian ‘research programmes’ is brought together in Table 1 (but limited, very largely, to English language literature):

(a) Much work has been done in the last 40 years in deepening the understanding of the theory of distribution and production prices itself. A vital point of departure is the interdependence between commodity costs of production and commodity prices in a long-period framework, which arises from the circular nature of production systems (literally, production of commodities by means of commodities). This interdependence is thrown into sharp relief by the distinction between basics and non-basics—itself a kind of distillation of the analytical essence of the classical distinction between necessities and luxuries. The dependence of the value of capital on distribution—and hence also the same dependence for capital–labour ratios and capital–output ratios at both the aggregate and sectoral levels—is another dimension of that circularity. Further research has concerned the complexities arising from various forms of joint production and natural resources, and other inquiry into deeper properties of such long-period price systems. Included in the latter has been the issue of the stability properties of such systems—the conditions under which market prices can be treated as convergent upon, or oscillating non-explosively around, normal prices.

Footnote continued

suppose that I do. I am likely to be a little bit wiser than he in this very thing: that whatever I do not know, I do not even suppose I know.’ (West & West, 1984, p. 70)

On the other hand, it should not be lost sight of that the small set of Sraffian propositions stated above under four propositions amounts to a coherent framework for understanding the capitalist economy as such, even if not a comprehensive and unified grand theory in the traditional orthodox manner.

We leave aside altogether here the intellectual history dimension of the Sraffian project. This has involved both a reconstruction of the nature and significance of classical and Marxian economics, as well as a critical reappraisal of the history of marginalist and wider modern economics. On this, Kurz & Salvadori (1998b), and further sources cited therein, contains a number of Sraffian contributions along these lines; but the literature on these matters is very large. Of course, Sraffa himself is now part of that intellectual history—and naturally, much attention also has been directed to interpreting his historical significance, context and intellectual relations with others such as Ricardo, Marx, Wittgenstein and Keynes. The relationship between classical economics and the Sraffian project is more complex than many think—certainly more complex than the appellation ‘neo-Ricardian’ might suggest. This nomenclature appears to have begun with Rowthorn (1974, p. 71)—vide Milgate (1987) and Rowthorn (1980, p. 8); but see as well the title of Parrinello (1970). Materials from Sraffa’s archive likely will clarify his relationship with all the classical economists (including those before Smith, like Quesnay), and Marx.

Given his key role in the development of the former, it is not surprising that Pasinetti (1988) has objected to the latter. Pasinetti (1990) is a somewhat different version of the same comment, and there is a response by Pivetti (1990). It may be added that there has been little interest in returning to the old classical closure, via exogenously fixing the real wage—though even if interest closure is accepted, it may be constrained by real wage behaviour (e.g. social limits to real wage variability), even in contemporary capitalism. Indexation of money wages would be the most obvious mechanism for possibly giving effect to real wage closure in modern capitalism.
Table 1. Key literature of the Sraffian project

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<thead>
<tr>
<th>(a) Theory of Distribution &amp; Production Prices</th>
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<tr>
<td>Sraffa 1951</td>
<td>Baldone 1980</td>
<td>Duménil &amp; Lévy 1985</td>
<td>Garegnani 1990b</td>
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<td>Abraham-Frois &amp; Berrebi 1979</td>
<td>Mainwaring 1984</td>
<td>Caminati &amp; Petri 1990</td>
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<td>Lippi 1979</td>
<td>Steedman 1984</td>
<td>Boggio 1985</td>
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<th>(b) Alternative Closures I—Accumulation</th>
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<tr>
<td>Pasinetti 1977</td>
<td>Franke 1985</td>
<td>Salvadori 1988c</td>
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<td></td>
<td>Ciccone 1986</td>
<td>Salvadori 1991</td>
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(c) Alternative Closures II—Interest


(d) Production Prices, Effective Demand & Long-Period Autonomous Demand

Eatwell & Milgate 1983  Kurz 1990a  White 1996

(e) Critique of Marginalism

Table 1. (continued)

(f) **Other Extensions**

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Parrinello</td>
<td>1970</td>
<td>(international trade)</td>
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<td>Clifton</td>
<td>1977</td>
<td>(industrial and corporate pricing)</td>
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<td>Steedman</td>
<td>1977</td>
<td>(critique of Marxism)</td>
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<td>Steedman</td>
<td>1979a</td>
<td>(international trade)</td>
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<tr>
<td>Steedman</td>
<td>1979b</td>
<td>(international trade)</td>
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<tr>
<td>Pasinetti</td>
<td>1981</td>
<td>(structural change)</td>
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<tr>
<td>Steedman and Metcalfe</td>
<td>1981</td>
<td>(international trade)</td>
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<tr>
<td>Gregory</td>
<td>1982</td>
<td>(economic development &amp; anthropology)</td>
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<tr>
<td>Semmler</td>
<td>1984</td>
<td>(industrial and corporate pricing)</td>
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<tr>
<td>Schefold</td>
<td>1985a</td>
<td>(environmental economics)</td>
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<tr>
<td>Steedman</td>
<td>1992</td>
<td>(critique of Kaleckian pricing)</td>
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<td>Pasinetti</td>
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<td>Gehrke &amp; Lager</td>
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<td>Hosoda</td>
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<td>Walsh</td>
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<td>(philosophy of economic approaches)</td>
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<td>Giammanco</td>
<td>1998</td>
<td>(scarce resources &amp; international trade)</td>
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<td>1998a</td>
<td>(critique of endogenous growth theory)</td>
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<td>Salvadori</td>
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<td>Hosoda</td>
<td>2000</td>
<td>(environmental economics)</td>
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<tr>
<td>Steedman <em>et al.</em></td>
<td>2001</td>
<td>(exhaustible natural resources)</td>
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(b), (c) Two possible alternative ‘closures’ of the distribution system—via the accumulation rate or via the rate of interest—have also been systematically pursued, especially the former route. The essential basis of the former is that given the equilibrium equality between saving and investment, an equality can be postulated between the ratios of saving to the value of the capital stock, and investment to capital. If the latter ratio could be conceived of as an independently determined rate of accumulation, and the former decomposed into a distribution-weighted average of saving out of each functional income category, in a ratio to capital, then a causation from accumulation to distribution could be posited—the ‘Cambridge Growth Equation’ causation. On the other hand, the essential insight of the interest closure approach is that given the equalization of interest rates and profit rates (net of compensation for differential asset characteristics such as illiquidity and risk), if profit rates are free to vary in equilibrium, at least within limits, and interest can be independently determined in money markets—including, in the latter determination, central bank behaviour (monetary policy)—then a monetary determination of profit rates, and hence income distribution more widely, can be posited. The absence, so far, of a more considerable development of this latter programme is the most unfortunate omission from the Sraffian project as a whole—although further development of it properly should not amount to another theory of profit rate determination, different from the Cambridge Growth Equation, but similarly mechanical and indifferent to the role of wider social forces. It offers a firm analytical foundation for non-neutrality of money, and a coherent framework for money endogeneity (thereby opening up a definite analytical connection with Post-Keynesian economics; vide Rochon & Vernengo, 2001)—both notions widely attractive in non-orthodox circles. So long as only one degree of freedom is available for determining distribution, both of these approaches cannot be sound. A kind of synthesis, precisely via opening up an additional degree of freedom, has been suggested by Panico (1993, 1997).

(d) The possibility of a synthesis of Sraffian distribution and pricing determination and Keynesian employment and outputs determination began with Garegnani (1978–79, though written much earlier, with a version available in Italian in 1964–65, in turn derivative from the theoretical part of Garegnani, 1962; vide the note by Garegnani at Eatwell & Milgate, 1983, p. 21n). In the first instance, developments along this line involved the issue of whether Keynes’s (and Kalecki’s) effective demand approach to output could be embedded within a price-theoretic framework along classical-Sraffian lines. Demonstrating this compatibility has been a research programme in its own right—although logical compatibility of course is not proof of the soundness or sense of such a synthesis. Within the broad framework of this synthesis, one particular issue has more recently come into focus: essential to the effective demand approach to determining aggregate activity levels is the supposition of an element of demand which is at least partly autonomous with respect to supply, in the equilibration of output levels. But what meaning can then be attached to any such idea of an autonomous demand, in the long-period

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9 Commonly, an autonomous investment demand has filled this role; but investment may not be the most plausible candidate for such autonomy in a long-period setting. It may be added here that the existence of a demand element that is not strictly constrained by (current) income points to the presupposition of a certain kind of ‘elastic’ financial system, for effective demand theories of output to make sense, in both short-period and long-period frameworks.
framework, which is the conceptual setting of Sraffian pricing theory? Does long-period autonomous demand make any sense? Showing that it does is an emerging sub-programme of the Sraffa-Keynes synthesis (Serrano, 1995; Trezzini, 1995, 1998; Park, 1997, 2000; Cesaratto et al., 2003).

Two final aspects of the Sraffian project may be noted:

(e) The critique of marginalism, which was fundamental to Sraffa’s original intention (hence the subtitle of his little book, and also the earlier, narrower critique of Sraffa, 1925, 1926), remains of ongoing importance. Not least, this is precisely because the critique centred upon capital theory has not yet convinced a majority of the profession to abandon the orthodox approach. In addition, a view emerged among the orthodox that the Sraffian critique of orthodox capital-theoretic analysis was entirely valid, but only for a subset of orthodox approaches (e.g. Hahn, 1982). In particular, it has been proposed that intertemporal and temporary general equilibrium approaches with disaggregated capital endowments are immune to the Sraffian class of criticisms. This latter issue has not yet been clearly resolved. Key proponents of the Sraffian project have not conceded the point (e.g. Schefold, 1997a, 2000; Garegnani, 2000); but the significance of the capital critique for those classes of general equilibrium models is yet to receive the analytically transparent resolution of the earlier capital-theoretic debates.

(f) Finally, some other extensions of the Sraffian project may be noted—significant but not involving a substantial body of literature, to date. In many respects these also share in the critique dimension; e.g. capital theory in its application to the theory of international trade.

In addition to the literature noted in Table 1, other significant works that do not easily fall within one or other of these programmes include: Dobb (1973); Political Economy: Studies in the Surplus Approach (which was published as a series from 1985 to 1990: 6 volumes and 11 distinct numbers, in 1650 pages); some entries in Eatwell et al. (1987); the Piero Sraffa Memorial Issue in the Cambridge Journal of Economics (1988, vol. 12, no. 1); Steedman (1988a—which also reprints a number of the early reviews of Sraffa, 1960); Kurz (1990b); Potier (1991); Roncaglia (1991); Baranzini & Harcourt (1993); Schefold (1997b); the Special Issue to Commemorate the Centenary of the Birth of Piero Sraffa in the Review of Political Economy (1998, vol. 10, no. 4); some entries in Kurz & Salvadori (1998b); Roncaglia (2000); and Cozzi & Marchionatti (2001). It may be emphasized that the literature in Table 1 is not intended by any means as a comprehensive literature survey; it is a statement of key literature in the fields. A quite comprehensive bibliography of Sraffa’s own publications can be found in Roncaglia (1978, pp. 151–153). In addition, an edition of selected manuscripts from Sraffa’s archive is in preparation—projected at approximately 2000 pages, under the general editorship of H. D. Kurz, by Cambridge University Press. It may be added that the prominent role, in particular, of the Cambridge Journal of Economics, Contributions to Political Economy, the Manchester School and Metroeconomica as vehicles for the public communication and preservation of this body of research is very evident—al-

\[10\] References are organized chronologically and alphabetically. Roncaglia (1978, pp. 154–171) provides a more extensive bibliography, to 1976.
though in the case of Contributions, more inclined to publication of Sraffian historical scholarship, so not so evident in the bibliography here. The Journal of Post Keynesian Economics, on the other hand, contains very little that could reasonably be called Sraffian.

How does all this sit with other non-orthodox approaches at the beginning of the 21st century? Three fairly distinct approaches were listed in the opening section: Post-Keynesianism, Marxism and Institutionalism. On the first of the four sets of Sraffian fundamental propositions outlined in the previous section, Marxism would be in agreement, perhaps also Post-Keynesianism (although without really having any coherent theory of distribution), and the Kaleckian approach would be obliged to treat distribution as being as determinate and coherent as its mark-ups. On the second set of propositions, concerning relative prices, there would be a degree of affinity with Post-Keynesian economics—to the extent that it tends to treat equilibrium prices in terms of costs plus profit margins (rather than demand and supply). But it offers no coherent theory of costs—and little about profit margins either. The use of marked-up prices as an ad hoc device may be quite harmless for some limited purposes—so long as such mark-ups are not treated as given when their deeper underlying determinants change (e.g. a permanent change in interest rates or minimum real wages with no change in mark-ups would be senseless). Marxist approaches to some extent have endorsed Sraffa prices as a coherent statement of Marxian prices of production. At the end of the day, for a framework of capitalist production and exchange, with or without free competition (unrestricted capital mobility, together with profit maximization), it is impossible to write an equilibrium or normal price equation—or any magnitude which itself depends upon such prices (e.g. a sectoral capital–labour ratio or a real wage)—without the foundation of long-period distribution and value theory, which is at the heart of the Sraffian project. In particular, positing the notion of non-competitive pricing is to conceptualize a departure from competitive pricing, and therefore can only be understood in relation to a robust theory of long-period competitive prices (cf. Sylos-Labini, 1984, pp. 141–143; original published 1971).

On the third set of propositions, there would be very wide agreement among unorthodox approaches that effective demand is central to explaining activity and growth in mature capitalism; that demand-constrained activity levels are common or the norm. But it is one thing to endorse in common the effective demand approach to explaining activity levels; it is quite another to agree that the principle of effective demand should be articulated in a framework of long-period prices and distribution. Post-Keynesians in particular have disputed the appropriateness of conceptualizations along such lines, regarding long-period

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11 This is on the supposition that the Keynesian revolution and Kaleckian economics can be collapsed into Post-Keynesianism. Whether or not Sraffian economics should also be subsumed under the rubric of Post-Keynesian economics is a semantic question of not much importance from the viewpoint of substantive beliefs. In a recent defence of the coherence of Post-Keynesianism Arestis et al. (1999, pp. 544–546) are equivocal on this question, although ultimately choosing to exclude Sraffianism. A perusal of the Post-Keynesian literature of recent decades would also reveal some ambivalence on this. From the other (Sraffian) side, perhaps ‘Post-Keynesianism’ has been something of an occasional flag of convenience.
frameworks as such, as inappropriate for treating effective demand. The Kaleckian element of Post-Keynesianism has naturally preferred mark-up prices to long-period prices—without seeing any need to explain mark-ups in relation to competitive prices, as embodying a deviation of prices from the latter, in the presence of restrictions to free competition. In an earlier comparison of Sraffian and Post-Keynesian views Lavoie (1992, pp. 61–68) sees more common ground—including a compatibility of short-period and long-period methods (quite rightly), as well as on value, money and output—although his discussion of production prices versus mark-up prices is compromised by the subsequent analysis of Steedman (1992), which demolishes the traditional partial equilibrium, Kaleckian approach to mark-ups (vertically integrated or otherwise), and the aggregate analyses which derive from that approach. In his useful commentary on Steedman (1992), Mainwaring (1992) also endorses the compatibility of short-term and long-period analyses—in particular, presenting a simple formal synthesis of short-run mark-up prices and long-period Sraffa prices. Marxian approaches, to the extent that production prices are still embraced by them, are more open to the combination of long-period prices and the principle of effective demand.

Finally, with regard to the monetary propositions under the fourth proposition in Section 2 above, there is first of all some tension within the Sraffian project itself: as indicated in Section 2, to the extent that in the Cambridge Growth Equation causation of the second of the five programmes listed in Table 1, the rate of capital accumulation is conceived of as determined independently of monetary phenomena, then a certain kind of neutrality of money would arise—although to be sure, different from that associated with marginalist orthodoxy. It would be akin to Ricardian neutrality, except that rates of interest in the monetary sphere would be governed by profit rates in production via prior determination of the accumulation rate rather than via prior determination of the real wage. The following minimal observation may be added. The independence of the rate of accumulation from the general rate of profit—a necessary condition for the Cambridge Growth Equation causation—could only occur under conditions of steady growth. With steady growth, the numerator of the rate of accumulation (net investment), and the denominator of the rate of accumulation (the capital stock), are collections of commodities in identical proportions, so that the accumulation rate is a pure number independent of relative prices—a

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12 Asimakopulos was perhaps the champion of this view—although Joan Robinson had started the ‘Post-Keynesian’ rejection of long-period theory. See the exchange between her (Robinson, 1979) and Garegnani (1979; also Garegnani, 1976, pp. 42–44; 1989). The memorial volume for Asimakopulos deals extensively with the issue (Harcourt et al., 1995). Incidentally, once the notion of long-period equilibrium is abandoned, it becomes meaningless to ask of Post-Keynesians whether they endorse that effective demand explains activity levels in both the short period and the long period. (It thereby also becomes impossible to accept substantial parts of Keynes’s intentions in the General Theory—articulated as they are, in long-period terms.) Then, the persistence of demand-constrained activity levels can be articulated only in terms of short-period equilibria which are more or less continually prone to destabilization. But what the sequence of such constrained (i.e. less than full, long-period) equilibria might be supposed to look like, has never been well-explained. Nor is it clear how the so-called Post-Keynesian growth theory fits into this anti-long-period stance.
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ratio of two quantities of the same composite commodity. To that extent, steady growth amounts to a system in which just one, albeit composite, commodity is produced. In non-steady conditions, with the commodity composition of net investment different from the commodity composition of the capital stock, the rate of accumulation cannot be written down without recourse to prices—and hence cannot be written down without recourse to a general rate of profit embedded in prices (Vianello, 1985, pp. 86–87; Ciccone, 1986, pp. 20–21). It may be emphasized that this means the Cambridge Growth Equation causation could never apply outside the abstract and highly restrictive conditions of steady state growth: steady growth (or equivalently, a one-commodity world) is not merely a simple, ‘first approximation’ framework within which to articulate the theory; it is the only situation in which the causation could be proposed. It is an obvious irony that the ‘Cambridge’ growth theory should fall victim to the same formal difficulty as orthodox capital theory.

Putting aside this ‘family dispute’, which the present writer would resolve against the Cambridge Growth Equation causation, endogenous money now appears to be capable of commanding a consensus across Sraffian and Post-Keynesian positions—although as Pivetti (2001, pp. 104–106) has indicated, it can be rendered consistent with orthodox economics as well. The question that remains is the determination of the interest rate set by the monetary authorities, at which they accommodate monetary demands: are the authorities free (within constraints) to choose this rate; or is the rate instead imposed upon them, by other forces—and are those other forces, if they exist, ‘real’ forces in the traditional sense? The orthodox answer is clear; the Post-Keynesian view, less so (see also Lavoie, 1995, pp. 473, 474). A singular Post-Keynesian view perhaps does not exist. To the extent that the Cambridge Growth Equation approach is endorsed as a ‘Post-Keynesian theory of distribution and growth’, such Post-Keynesians end up also with a form of money neutrality, in which central banks (and money markets) could exercise no influence on interest rates, except temporarily—and hence no influence on profit rates and distribution more widely.13 It could be thought that another line of divergence between Post-Keynesians and a Sraffian interest rate closure might turn upon the significance of liquidity preference for monetary approaches to interest. However, it seems doubtful that this is a matter of fundamental theoretical importance: it would merely involve the question of how best to theorize the term and risk structure of interest rates, along with other aspects of the rate structure (wholesale versus retail rates, borrowing versus lending rates, and so on)—not unimportant matters, but of second-order theoretical significance really. As Pivetti (1988, p. 282) allows, liquidity preference as expressed in money market sentiment also may constrain the choices open to monetary authorities, in the particular money market in which they conduct policy.

Nothing has been said so far about Institutionalism. How does it relate to the Sraffian propositions and programmes? In fact, Institutionalism exhibits no

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13 It may be noted that the separability of the first programme in Table 1, from the second and third, is evident enough from the fact that the former has been able to proceed without needing to decide the latter issue.
core theoretical propositions or beliefs at all: if it is a thing of any clear substance, it is much more a methodological temper than a doctrinal standpoint. There is no Institutionalist theory concerning distribution, value, activity levels, or money—although its scepticism concerning the optimality or desirability of unregulated market forces might incline a general doubt among adherents, concerning the efficacy of capitalism for generating adequate employment (and hence perhaps a tendency towards Keynesianism). But in its (i) lack of confidence in capitalist outcomes, (ii) interest in institutionalized power, (iii) pragmatic and problem-oriented approach to practising economics (and associated aversion to 'high theory'), and (iv) opposition to methodological individualism (as at least not sufficient to understanding social economy), Institutionalist makes no necessary or inevitable break with marginalism. The first three of these attitudes are not incompatible with orthodox marginalist beliefs. The last is important and a point of common ground with non-orthodox positions; but by itself, this methodological disposition connotes no definite, substantive propositions about how the economy actually operates. From this vantage-point, Institutionalist can be read as a kind of cautionary tale for keeping theoretical economics of all kinds 'in their place' so to speak, a countervailing force to any outbreak or ascendancy of 'the [so called] Ricardian Vice' (Schumpeter, 1954, p. 473). To that extent, Institutionalist is compatible, and incompatible, with the Sraffian project—‘it just depends’. The lack of doctrinal substance means that some Institutionals may sympathize with that project, and some may not. Nevertheless, the attitude to theory associated with Garegnani (1984, pp. 296–299; or more expansively, 1987, pp. 561–563, and

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14 Similar judgement can be applied to elements of ‘evolutionary economics’, while other parts of that project may end up offering something more substantial.

15 Some quotations will illustrate the point. (For a critical, Sraffian, view of this methodological temper see Roncaglia, 1991, pp. 210–211; 2000, pp. 95–97, 100–105.) Discussing the analytical separability of the classical ‘core’ analysis (determination of the surplus and its distribution), from the wider set of economic phenomena and interactions:

This separate study was the natural result of what was seen as the multiplicity of these [latter] influences and their variability according to circumstances. In fact this multiplicity and variability prevented the generalizations about them from assuming the form of quantitative relations of known general properties….

... We may note how this more limited scope which the theory of value has in the classical theories [relative to marginalist theory] gives them the greater flexibility which seems required by a discipline like economics.

... The above limitation of the theory of value in the classical authors appears to have been the result of an instinctive methodological adaptation to the requirements of economics, where, because of the impossibility of experiment and of the complexity and variability of the material, 'the function of analysis and deduction ... is not to forge a few long chains of reasoning, but to forge rightly many short chains' [quoting Marshall]....

In fact the flexibility resulting from the classical reasoning 'by stages' and the recognition it implies of the multiplicity and variability of the relations examined outside the 'core', appear to be a more or less conscious recognition of the role which broader social, institutional and political factors, in a word historical factors, play in economic phenomena, particularly in the spheres of distribution, accumulation and technical
alluded to in the final paragraph of Section 2 above), concerning the limits of
general theory, surely has kinship with the Institutionalist methodological tem-
per. However, perhaps at the end of the day many Institutionals are saying no
more than that orthodox theory should be utilized with care and with an
appreciation of the concrete institutional circumstances of each particular appli-
cation. This is a good temper to encourage; but it is not an alternative
economics; and a bad theory well or seductively applied might simply make that
bad theory spuriously more attractive (e.g., Marshall).

4. Orthodoxy and the Prospects for Non-Orthodoxy

The current tendencies in economics, for example, the new preoccupations with
game-theoretic models of immense, ad hoc variety, might give the impression
that research endeavours around production, choice of technique, capital theory,
and so on—and, in particular, the use of these analyses for the critique of the
traditional, orthodox core beliefs stated in the opening paragraph above—show
the Sraffians to be ‘still fighting the last war’, so to speak. Orthodoxy has moved
on, it might be said. In a quite significant sense the mainstream has taken on a
definite postmodern tinge. Consider these difficult questions. What has become
of the ‘target’, the object of Sraffian criticism, since (say) the 1966 Quarterly
Journal of Economics symposium on capital theory or the 1985 conference
marking 25 years since Production of Commodities by Means of Commodities
(Bharadwaj & Schefold, 1990)? Is general equilibrium theory still the theoretic
hard core of orthodoxy, of the discipline’s central beliefs? What is orthodox
belief now? Is the repositioning of the doing of ‘normal (economic) science’
around game theory a fundamental shift of orthodoxy, in terms of the substance
of its beliefs? Or is it a mere reworking of the same fundamental beliefs in
different analytical clothing—and perhaps with those core beliefs, as a result,
now more submerged (and therefore more dangerous)? I am inclined to affirm
the latter. Those who would be happy to characterize the critical dimension of
the Sraffian project as a case of old soldiers still fighting the last war are wrong;
but something significant has happened to orthodoxy in the last two decades. It
may be just infection by postmodern nihilism, but it is no less a problem for that:
it is hard to engage with an opponent who holds the same fundamental beliefs
as he did 20 or 30 years ago, but no longer really cares about those beliefs, or
about the relation of those beliefs to the actual world (and it should not be
forgotten that the widespread acquiescence in those beliefs powerfully con-
tributes to shaping the character of that actual world, which we all have to share
with orthodox economists). The recent symposium on ‘the progress of heterodox
economics’ (Coats et al., 2000) has a recurring theme that is not without
substance: orthodoxy has become more diffuse, more fragmented, more ad hoc,
more detached, and less coherent. This is a postmodern temper—and is

Footnote continued
change. The absence of this recognition from later economic theory has often been
lamented. (Garegnani, 1987, pp. 562–563)

See also the comments on Sraffa, classical economics and the Historical School by Schefold
illustrative that postmodernism easily can have a reactionary or conservative character and function, if it so chooses.\textsuperscript{16}

Certainly the orthodox target has become more elusive in some respects. But this does appear to be largely a submergence of the same traditional belief system: the old orthodox verities remain bedrock convictions very widely endorsed. They have not been abandoned; the entertaining of debate around them has been abandoned. The persistence of entirely traditional orthodox views can be seen in one particular—entirely representative, although perhaps particularly blunt—recent elementary textbook, by a distinguished member of the profession (Blanchard, 1997). In an epilogue (entitled ‘The Core’) which appears at the end of the text proper, the author notes five basic sets of propositions about which there is apparently no disagreement in macroeconomics. All (legitimate?) disagreements are understood to occur within the framework of these principles, these disagreements pertaining to just two issues: ‘the length of the “short run”’, and ‘the role of policy’. For those familiar with conventional macroeconomics these five principles may be described as ‘the usual suspects’:

(i) ‘In the short run, shifts in aggregate demand affect output.’
(ii) ‘Expectations play a major role in determining the behavior of the economy. How people … respond to … policy determines … the economy’s response to the [policy] change.’
(iii) ‘In the long run, output returns to its natural level … [which] depends on the natural rate of unemployment … the size of the labor force … the capital stock, and … the state of technology.’
(iv) ‘Monetary policy affects output in the short run and medium run, but not in the long run …[:] money growth eventually translates one for one into … inflation.’
(v) ‘Fiscal policy has … short- and long-run effects on output … [but higher] deficits are likely to increase activity in the short run … [and] decrease capital accumulation and output in the long run.’ (Blanchard, 1997, pp. 620–621)

It might almost be welcome to be able to believe that Blanchard’s five principles are merely intended as useful half-truths for beginners; but this is not so. On the basis of the fundamental Sraffian propositions enunciated in Section 2 above, only the first two of these could be endorsed—and the second is in fact little more than an empty formalism, if not a tautology (given that ‘people’ make up ‘the economy’). The latter three would be rejected;\textsuperscript{17} and those three

\textsuperscript{16} I mean, here, reactionary or conservative in the intellectual sense—though relativism is by no means intrinsically or naturally progressive \textit{politically}, either. On the postmodernism of contemporary orthodoxy, see Dow’s contribution in Coats \textit{et al.} (2000, p. 159). The contributors to this symposium, incidentally, are inclined to see the defining characteristic of orthodoxy as formal or methodological—whereas my definition in Section 1 above is more substantive, or doctrinal.

\textsuperscript{17} The possible exception to this is Blanchard’s fourth proposition—if the Cambridge Growth Equation causation is endorsed, and conceived of as a kind of non-marginalist form of neutrality. However, such a view would not entail full labour employment, any more than did Ricardian neutrality of money. It may be noted in addition, notwithstanding Blanchard, that the long-run element of the fifth proposition in fact really does not command even an \textit{orthodox} consensus, not even when expressed merely as a likelihood. For a valuable critical analysis of the various orthodox routes via which fiscal contraction may be supposed capable of expanding equilibrium short-run or long-run aggregate output see Barba (2001).
propositions, and the rejection of them, hinge upon the same singular issue: the
question of whether there exists some ‘natural’ tendency for a market economy
to converge upon a market-clearing outcome in which involuntary or demand-
deficient unemployment is impossible (Aspromourgos, 2001, pp. 15–16). The
error in this and the related three Blanchard principles derives, of course, from
faulty underlying microeconomic and general equilibrium theoretical structures.

In 1966, if not 1985, a reasonable person not prone to excessive optimism
would have expected the state of economics to be better in 2000 than it turned
out to be; that is to say, with the mainstream less in thrall to marginalism than
previously, not more acquiescent. The actual outcome is definitely a failure of
some kind. To whom should the failure be attributed: the Sraffians, the other
non-orthodox, and/or the orthodox? Errors occurred in the Sraffian camp. But it
may be said with regard to the Sraffian project as whole, that much of its
fundamental programmes has successfully proceeded and developed, from the
point of departure provided by Sraffa’s 1960 ‘prelude’. This is not to say that
nothing remains to be done in relation to the fundamental Sraffian propositions
listed in Section 2 above—and one of course would be glad to see progress
accelerated via more intellectual workers in the field. Intellectual problems
remain with regard to joint production, including scarce natural renewable and
non-renewable (exhaustible) resources; the stability properties of long-period
prices; autonomous demand and accumulation in the long period and long run;
a more formal expression of the notion of the interest rate as a conventional
phenomenon in the Sraffa–Keynes framework with non-neutrality; the critique of
general equilibrium theory; and no doubt other matters. But allowing that, one
may say that ‘the decks are cleared’ for a rational and objectively based political
economy to go forward, on well-laid analytical foundations contributed by the
Sraffian project and research programmes—foundations that will endure in
theoretical significance for as long as does competition among capitals. Whether
the profession—in its dominant orthodox element, or in its other unorthodox
elements—pursues this offered lead is the intellectual responsibility of those who
make up those several elements. Still, it could be concluded that the current
hegemony of marginalism is unlikely to persist indefinitely; in the end, it is too
humanly unsatisfying an account of us, and how we live. Or is it always to be
that an intellectual discipline so intimately involved with material interests
inevitably will be marred by false consciousness? One might point to Ricardo as
evidence for the possibility of non-mystifying economics. Or was a David
Ricardo only possible in a time before economic analysis became an institution-
alized element of the structure of social governance? In any case, real success
will not be a willingness of the marginalist camp to give more professional space
to the unorthodox in general or Sraffians in particular; it will be, in particular,
when Sraffian propositions are no longer Sraffian propositions, but ‘just’ gener-
ally accepted propositions of economic science as such.

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